RCP/CORBA Database Interface Review Introduction

Review Materials

1. The most up-to-date version of this document is available on the Web, at http://www-cdserver.fnal.gov/cd_public/cpd/aps/rcp_corba_review/main.htm.
2. Source code can be found at http://www-cdserver.fnal.gov/cd_public/cpd/aps/rcp_corba_review.
   - The parts of the code I think are more relevant to the RCP/CORBA database interface are available as text files in the *rcp* and *rcp_db_server_idl* directories of the Windows shared directory \\cdserver\cd_public\cpd\aps\rcp_corba_review. This directory is also available via the Web, at URL http://www-cdserver.fnal.gov/cd_public/cpd/aps/rcp_corba_review. These files are in the directory structure of the CVS packages; I have removed the files I think are less relevant to this review. The *rcp/test* directory contains all the tests of the system -- it is probably not necessary for the reviewers to view all of these tests, but I have made them available for those who are interested.
   - The full code for the current (as of 31 October 2001) development of the DØ version of *rcp*, and of *rcp_db_server_idl* is available in two gzipped tar files
     - The full **rcp** package can be retrieved from http://www-cdserver.fnal.gov/cd_public/cpd/aps/rcp_corba_review/rcp.tgz
     - The full **rcp_db_server_idl** package can be retrieved from http://www-cdserver.fnal.gov/cd_public/cpd/aps/rcp_corba_review/rcp_db_server_idl.tgz.
   - The full source code for *rcp* can also be obtained from the DØ CVS repository; check out the version with the rtag “rcp_corba_review”.
3. The full RCP documentation is available in the *doc* directory of the *rcp* package; it is also available on the web at http://cdspecialproj.fnal.gov/d0/rcp/index.html.
4. I believe the most important part of the RCP documentation is the note **RCP Scenarios**, available on the RCP documents page. (This document is also found in the *doc* directory of the *rcp* package). This document explains a series of scenarios (“use cases”, if you like the jargon) for the RCP system. These scenarios form the basis of many of the tests in the RCP package.
5. Any transparencies I present will also be made available on the Web, in the same directory as this document.

Review materials added since 31 October 2001

1. The document RCP/CORBA Client Code Overview contains an overview of the design and implementation of the RCP/CORBA client software.
2. UML static model diagrams that show the relationship between the major elements of the RCP database subsystem are available:
   - HTML form (your browser must be able to interpret PNG graphics; if the pages contain "broken picture" icons when you view them, your browser does not support PNG; your browser must also support JavaScript).

- PostScript form or PDF form (these are each one file).

Please note that the UML diagram does not contain all the details of the code; I have included those data members and functions I think are most relevant to understanding the "big picture" for this review.

Changes to the Code Since 31 October 2001

Since tagging the code for the release on 31 October 2001, I have made a few modifications in the code. I believe the complete list of changes is:

1. Modification of *rcp/test/runRCPTests.prl* and *rcp/test/runCORBATests.pl*, to correctly deal with the parts of the test *rcp/test/RCPManager_t.cpp* that uses features of the class *FileSystemDB*. It may be useful (I am not yet sure) to add functions for querying an *AbsRCPDatabase* about the *RCPNames* it contains; if so, this needs to be added to the IDL interface in *rcp_db_server_idl/idl/Rcp.idl*.
2. Modification to *rcp/src/CORBA_RCPDatabase.cpp* to correctly process "untracked parameters" in RCPs. The implementation in place is not optimal, but it behaves correctly.
3. Modification to *rcp_db_server* to allow the contents of one RCP to refer to an RCP in another logical database. Current limitation is that this database must reside in Oracle (enforced with a foreign key constraint). The RCP system does not care what parts reside in Oracle and what parts reside in other databases, so this restriction must be removed from the Oracle schema.

With the modification made to *rcp_db_server*, all the tests currently in the *rcp* package are passed. I believe the package is now ready for release, and that we can work on integrating it into the DØ release environment.

Comments and Questions from the Committee Members

Some of these are extracted from e-mails; I have taken the liberty of editing them down to the parts that are relevant to the RCP/CORBA client, as opposed to those that relate specifically to the server.

Q1

There are many d0cvs packages with 'rcp' in their names. I found some of the cvs packages used to define the database (rcp_db, but I note: I am unable to open the ER diagram from John's web page and from the /doc directory in this package), the database server (rcp_db_server), idl (rcp_db_server_idl), I would like to know the cvs packages names for web based user interface (like the package for Schema reports from John's web page), command line user interface, and/or interface to other d0 software packages which use the RCP system (for example, is there code interfacing to the server which will make switch to the database transparent to the users?).

The full list of packages that have the string “rcp” in their names (as of 1 Nov 2001), and their descriptions, are the following:

Package Name	Description
/d0dist/dist/packages/d0_rcp_tools	not relevant for this review
/d0dist/dist/packages/d0cuts_rcp	not relevant for this review
/d0dist/dist/packages/rcp	all client code is in this package
/d0dist/dist/packages/rcp_corba	this is just a historical artifact; it contains nothing useful, and is not part of any release
/d0dist/dist/packages/rcp_db	server-related
/d0dist/dist/packages/rcp_db_server	server-related
/d0dist/dist/packages/rcp_db_server_idl	this is the interface used by the client, and implemented by the server
/d0dist/dist/packages/rcp_db_user	this package is empty; I don’t know its intended purpose
/d0dist/dist/packages/rcpfiledb	not relevant for this review

Several of the questions above are more directed at the database server than the client. The interface to the RCP system used by DØ software systems consists of the classes RCP and RCPManager (from package rcp), and the class RCPID (from package identifiers). These classes in no way change because of the introduction of an CORBA/Oracle back end in place of the “FileSystemDB” back end. The only changes that will be observable to users are:

1. Different environment variables and environment variable values are used to configure a program to use the CORBA/Oracle back end in place of the FileSystemDB back end; this is configurable on a per-logical-database basis.
2. The CORBA/Oracle back end is capable of throwing different exceptions than those thrown by the FileSystemDB back end. This is not a desired feature, and I believe an eventual goal of improving the implementation should be to never allow a CORBA-related exception to propagate out to the user.

In summary, no user code needs to change in order to move from using the FileSystemDB to using the CORBA/Oracle back end.

This page was last updated: November 04, 2001 01:35 PM